

ABSTRACT

The present invention relates to a method of producing an optical fiber-processing phase mask having minimized connection errors that may degrade the spectral line shape and group delay characteristics of an optical fiber diffraction grating fabricated by using the phase mask. The present invention provides a method of producing an optical fiber-processing phase mask having a repeating pattern of grating-shaped grooves and strips provided on one surface of a transparent substrate, so that diffracted light produced by the repeating pattern is applied to an optical fiber to fabricate a diffraction grating in the optical fiber by interference fringes of diffracted light of different orders. In making a mask having a plurality of juxtaposed patterns (P_1 to P_s) having a linearly or nonlinearly increasing or decreasing pitch and a uniform groove-strip width ratio, multiple exposure is carried out to minimize difference between the pitch at the joint between patterns having different pitch data and the pitch in each individual pattern.

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